

REMARKS

Claims 1-99 are pending in the above-identified application and remain for consideration. (The Office Action states claims 1-98, but claim 96 mistakenly occurs twice. To correct this, the second occurrence of claim 96 is now renumbered claim 97, original claim 97 is now renumbered as claim 98, and original claim 98 is now renumbered as claim 99. The dependency of claim 99 (originally 98) is also now corrected.

Claims 68-98 (properly 68-99) were allowable over the prior art.

Claims 1-15, 17, 21, 23-24, 26, 29, 32, and 35-47 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 3,931,002 to Ottenheim et al. (“Ottenheim et al. ‘002”).

Claims 1, 18-20, 29-34, and 52-67 were rejected under 35 U.S.C. § 103(a) as obvious over Ottenheim et al. ‘002.

Claims 1-98 (properly 1-99) were rejected under the judicially created doctrine of obviousness-type double patenting as unpatentable over claims 1-29 of U.S. Patent No. 6,685,838 to Licata (“Licata ‘838”) over Ottenheim et al. ‘002.

The three-month shortened statutory period for response expires on June 16, 2005. Accordingly, this response is being filed in a timely manner.

I. AMENDMENTS TO THE APPLICATION

Entry of the amendments is respectfully requested. As detailed below, the amendments introduce no new matter.

The second occurrence of claim 96 is renumbered as claim 97 and the following claims, 97 and 98, are now properly renumbered as 98 and 99. Additionally, the dependency of claim 99 (originally claim 98) is corrected.

Independent claims 1 and 68 are amended to recite that the fibrous protein powder (claim 1) or the keratin protein powder (claim 68) are provided in an unreduced state. Support for this amendment is found at page 9 of the specification at paragraphs [046] to [048]. No reducing agent is used at any point and no attempt is made to exclude atmospheric oxygen, which will reoxidize disulfide bonds present in the protein molecules, at any point in the process.

This response is being filed in accordance with recently revised 37 C.F.R. § 1.121, as set forth in 68 F.R. 38611 (June 30, 2003). If the amendment is considered to be not in compliance with recently revised 37 C.F.R. § 1.121, the Examiner is respectfully requested to contact the undersigned at his earliest possible convenience.

Accordingly, entry of these amendments is respectfully requested.

II. THE REJECTION UNDER 35 U.S.C. § 102(b) AS ANTICIPATED BY OTTENHEYM ET AL. '002

Claims 1-15, 17, 21, 23-24, 26, 29, 32, and 35-47 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 3,931,002 to Ottenheim et al. ("Ottenheim et al. '002").

As applied to the amended claims, this rejection is respectfully traversed.

Ottenheim et al. '002 discloses a process for removing heavy metals from solutions. In the process of Ottenheim et al., solutions are contacted with a sulfur-containing reagent consisting of: (1) reduced keratin; (2) Bunte salts of keratin; or (3)

natural or synthetic polyamides at least part of whose amide groups have been replaced by thioamide groups. The loaded reagent is then separated off.

This rejection is respectfully traversed because Ottenheym et al. '002 does not disclose a process for removing heavy metals from solutions that employs keratin or any other fibrous protein in an unreduced state. Ottenheym et al. '002 reduces the keratin with an agent such as a tertiary phosphine or a thiol (column 1, lines 49-55). In the absence of such a reducing agent, the disulfide bonds of a fibrous protein would not be reduced; any reduction that occurred would be reversed by oxidation by molecular oxygen from the atmosphere, which is not excluded. This is why, when polyacrylamide gel electrophoresis is carried out on proteins to determine their molecular weight, they are not only denatured with high concentrations of sodium dodecyl sulfate, they are also reduced by boiling them in high concentrations of  $\beta$ -mercaptoethanol or a similar strong reducing agent. In the absence of such a reducing agent, the proteins are in an unreduced state.

Anticipation under 35 U.S.C. § 102 requires that that the claimed subject matter be described in its entirety in a single reference. Kalman v. Kimberly-Clark Corp., 218 U.S.P.Q. 781, 789 (Fed. Cir. 1983), cert. denied, 465 U.S. 1026 (1984); In re Marshall, 198 U.S.P.Q. 344 (C.C.P.A. 1978). The absence from Ottenheym et al. '002 of any teaching or disclosure of the use of keratin protein or any fibrous protein in an unreduced state precludes any rejection over Ottenheym et al. '002 under 35 U.S.C. § 102.

Accordingly, the Examiner is respectfully requested to withdraw this rejection.

III. THE REJECTION UNDER 35 U.S.C. § 103(a) AS OBVIOUS OVER OTTENHEYM ET AL. '002

Claims 1, 18-20, 29-34, and 52-67 were rejected under 35 U.S.C. § 103(a) as obvious over Ottenheim et al. '002.

This rejection, as applied to the amended claims, is respectfully traversed.

As indicated above, the claims all require the use of a fibrous protein such as keratin in an unreduced state. Ottenheim et al. '002 requires the use of keratin or synthetic polymers that have undergone reduction to produce reduced thiol groups, such as by the use of a strong reducing agent such as  $\beta$ -mercaptoethanol. There is no teaching or suggestion in Ottenheim et al. '002 of the use of keratin or any other fibrous protein in an unreduced state.

All claim limitations must be considered in evaluating the non-obviousness of an invention in light of prior art. In re Fine, 5 U.S.P.Q. 2d 1596 (Fed. Cir. 1988). The absence of any teaching or suggestion in Ottenheim et al. '002 of using keratin or any other fibrous protein in an unreduced state, or without strong reducing agents, precludes such a rejection under 35 U.S.C. § 103(a).

Accordingly, the Examiner is respectfully requested to withdraw this rejection.

IV. THE OBVIOUSNESS-TYPE DOUBLE-PATENTING REJECTION

Claims 1-98 (properly 1-99) were rejected under the judicially created doctrine of obviousness-type double patenting as unpatentable over claims 1-29 of U.S. Patent No. 6,685,838 to Licata ("Licata '838") taken in view Ottenheim et al. '002.

This rejection is also respectfully traversed. There is no basis for combining the subject matter of the claims of Licata '838 with Ottenheim et al. '202 because the claims of Licata '838 are directed to processes that use keratin or other fibrous proteins in an unreduced state, while the teachings of Ottenheim et al. '202 are directed to processes that require keratin in a reduced state. In Ottenheim et al. '202, the keratin must be reduced by treatment with a strong reducing agent such as  $\beta$ -mercaptoethanol or another strong reducing agent.

The existence of obviousness-type double patenting requires that the invention defined in a claim in the pending application be an obvious variation of the invention defined in a claim of an earlier-issued patent. In re Berg, 46 U.S.P.Q. 2d 1226 (Fed. Cir. 1998).

Moreover, the analysis required for obviousness-type double patenting parallels that required for a determination of obviousness over prior art pursuant to 35 U.S.C. § 103. Therefore, the lack of incentive to combine the invention as recited in claims 1-29 of Licata '838 with the teachings of Ottenheim et al. '202 precludes any obviousness-type double patenting rejection on that ground.

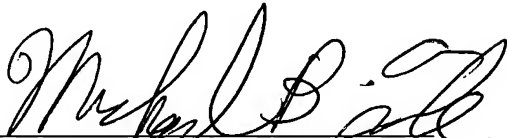
## V. CONCLUSION

Accordingly, all claims in the application are novel and nonobvious over the prior art of record and are not subject to obviousness-type double patenting. Prompt allowance of these claims is therefore respectfully requested.

If any issues remain outstanding, the Examiner is respectfully requested to telephone the undersigned at (858) 450-0099 x302.

Respectfully submitted,

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